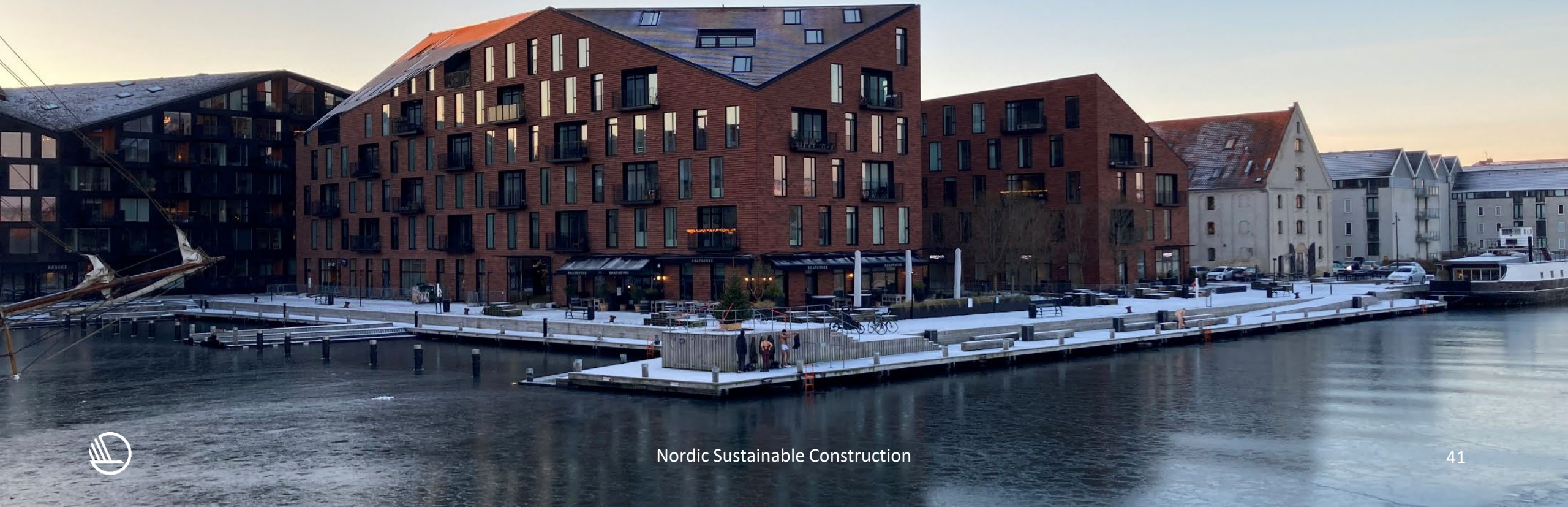
Work Package 1

Nordic Harmonisation of LCA



Nordic Harmonisation of Life Cycle Assessment, WP1

Harri Hakaste
Ministry of the Environment

Nordic Sustainable Construction

WP1 Nordic harmonisation of life cycle assessment

Task 1
Nordic LCA practices

- Feasibility study: how far to harmonise?
- Methodological harmonisation for normative needs
- Compatibility of building LCA and infrastructure LCA
- Timely importance for policymaking

Task 2
Data for LCA

- Joint processes for gathering and verifying generic data
- Joint processes for setting lifecycle scenarios for normative LCA

Task 3
BIM for LCA

- Development of LCA guidance for BIM
- Development of national reference buildings into BIM
- Development of training models
- Coordination with BIM and other software developers

Task 4
Limit values and monitoring the decarbonisation

- Joint method for defining country-specific limit values where needed
- Joint process for reporting the climate impacts of Nordic built environment

Task 5
Acceleration Programme

- To accelerate the decarbonisation of building and construction sector

Best outcomes of WP1

- Overview of the LCA methods across Nordic countries and Estonia
  - Understanding the differences, pros and cons
  - Recommendations for harmonization
  - Inspiration and lesson learned for other countries
- BIM-based building LCA process, describing possible pathways from BIM to LCA
- Nordic view on data needs and scenario settings for whole life cycle building environmental assessment

Thank you!

Maria Tiainen
maria.e.tiainen@gov.fi
Harri Hakaste
harri.hakaste@gov.fi

Work Package 2

Circular Business Models & Procurement

Nordic Innovation

Rasmus Malmborg

Sustainable Construction – WP2

- Circular Business Models
- Public Procurement

Projects WP2

- Circular business model workshops (w/Circular)
- **Circular procurement in cities**
- New blue biobased building material
- Place- and naturebased construction in the Nordics (w/WP3)
- **Building a retrade market for building material**
- Nordic Smart City circular fast track (w/Circular)
- **Nordic piloting program for circularity in technical building solutions (w/Circular)**

Achievements

- Contributed to Nordic Blue Building Alliance
- Cooperation on circular buildings and public procurement in Nordic cities
- Circular operations in Nordic construction companies
- Building an ecosystem of retrade in the Nordic countries

WP2: Circular Procurement

Tampere:
What does the practical implementation of circular economy and reuse of building materials actually mean – what can the companies realistically deliver when the municipality procures buildings?

Stavanger:
Kindergarten built in wood and producing surplus energy to both cover the needs of the kindergarten and surrounding housing.

REPORT
AFRY has analysed circular building projects in the cites of Tampere, Stavanger, Copenhagen and Stockholm.

Key lessons learned on successful practices

Goals and monitoring:

- Comprehensive Integration: Align with sustainability goals, integrate throughout project life cycles
- Goal Setting and Accountability: Set ambitious targets, holding city managers accountable, and tie bonuses to meeting circular targets
- Documentation and Monitoring: Embed regular monitoring in all documentation
- Timing and data needs: Measure and monitor the achievement of goals
- Certification and Standards: Use frameworks such as BREEAM-certification guidelines

Organisation and communication:

- Political Commitment: Secure political backing for resources and support, ensuring most effective targets are prioritised
- Personnel Resources: Designate sustainability resources in departments, allocate responsibilities
- Communication and Dialogue: Foster internal and stakeholder dialogue

Solutions, practices and innovation:

- Collaborative Pilots: Foster stakeholder collaboration using in-house expertise
- Pre-Demolition Studies: Conduct surveys well in advance, identify reusable materials and partners
- Tendering Process: Balance cost and competence, leave room for innovation
- Digital Tools for Circularity: Cooperate building platforms to reduce risks and improve quality, prioritise easy use and automations
- Addressing Reuse Challenges: Develop systems to match donor and receiver buildings for material reuse, addressing timing, logistics, and data needs.
- Land use agreements: Explore e.g., themed plot leasing

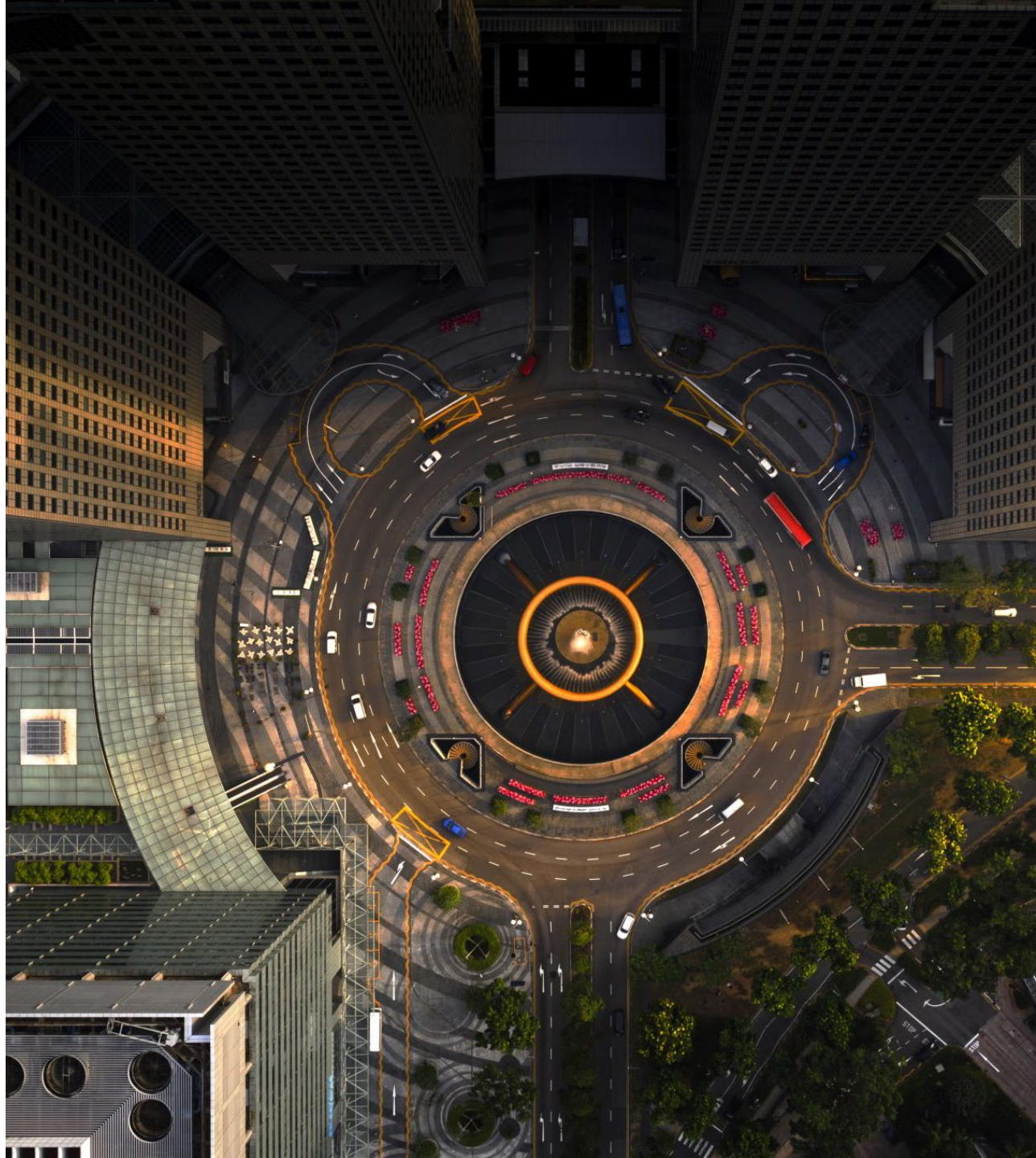
Building a retrade market in the Nordics

- Project is lead by Natural State
- Gatherings most mature businesses within the construction materials sector
- Showcase that reuse of critical construction material works
- Exchange knowledge on similarities and differences in the Nordic markets
- Scaling companies and solutions in the Nordic market

Nordic Smart City Circular Fast Track

- 18 Nordic Cities
- Circular innovation fast track through implementation of tested solutions in other cities.

➡ Job creation, circular solutions, private-public collaboration



What will be carried forward

— Collaboration with Nordic companies

- Company needs and company collaboration/ value chains for circularity in the construction sector

— Collaboration with Nordic cities

- Cities are important innovation hubs
- Public procurement drives market development
- Cooperation with private businesses

- Important level for Nordic cooperation

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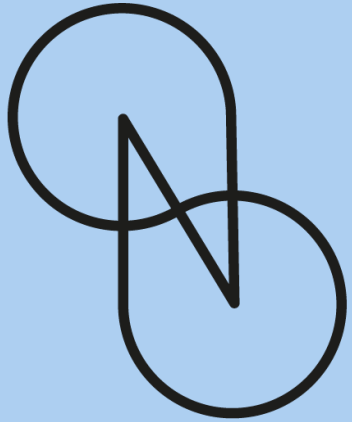
Nordic Innovation

Work Package 3

Sustainable Construction Materials & Architecture



SUSTAINORDIC

Sustainable Construction Materials and Architecture

- To map out the system around sustainable conduct in construction in the Nordics and identify levers and hinderances for the use of sustainable and resilient building materials in architecture.
- To gain understanding the role of governance and architecture in adopting sustainable and resilient materials and practices in Nordic construction and reuse and retrofit.
- To examine the barriers and opportunities for (re)introducing and integrating place based and nature-based practices into the mainstream/conventional construction industry in the Nordics.
- To draw out recommendations to be fed into The Nordic Vision 2030.

Learning from the sector

The results are based on knowledge gathered through:

- Input from 160 experts, industry players SME´s and big players), practitioners, policy makers and activists in the systems around construction
- 39 interviews
- 34 events
- 4 roundtable conversations
- 8 publications
- Over 950 participants have contributed indirectly through events and debates hosted by SUSTAINORDIC

All of this collected knowledge summed up in a set of policy recommendations

Future-Proofing Nordic Construction

An overarching view of the recommendations

- **Preservation and adaptive reuse**: Prioritizing retrofitting and renovating buildings over new construction, to reduce resource use and preserve cultural heritage.

- **Reduce per-capita square meters:** To respond to the increasing need for (affordable) housing in larger cities in the Nordics without resorting to building new, renovate and utilize existing building stock.

- **Shift from material consumption to sustainable calue-Creation:** Prioritizing natural resource preservation and regenerative practices to reshape economic and political incentives.

- **Place-based user- and community-driven development**: Place-based and participatory urban planning that aligns with local needs and responds to site and draws on local traditions.

- **Transparent and holistic assessment**: Level playing field under regulation that is centered around clear carbon and ecosystem impact measures as the central health and safety meassure with priority over all other considerations in all legislation.

Place-based and Nature-based Construction in the Nordics - A Collab between WP2 and 3

- **Planetary Boundaties Seminar**

Exhibition, 50 participants, 6 speakers, 1 cofunder

- **The Great Repair Moves North Workshop**

Workshop on timberframing and adobe brick work, 33 participants, 6 lecturers, 3 cofunders

- **Final Conference: Place-based and Nature-based Architecture in the Nordics**

Full day conference, 2 site visits, material exhibition, 80 participants, 19 speakers, 1 cofunder

- **Nordic SME Involvement**

20 interviews with SMEs, academia and municiplaities connected to place-based and nature-based materials i construction

- **Publication: Recommendations from the small and the many in place based and nature based construction**

Main learnings on Place-based and Nature-based Construction in the Nordics

- We already have all the nature-based and circular solutions we need to transform construction to operate within planetary boundaries.
- Ambitious legislation is the main hinderance for the transformation and therefore also holds the main opportunity for change.
- We do not need to add any new square meters to the building mass in the Nordics to cover the need for housing.
- We need to create level playing field under Paris compliant legislation

Work Package 4

Emission-free Construction Sites

The importance of planning and designing

- Early planning:
  - Use LCA to identify key emission sources (modules A4/A5: machinery, waste, transportation).
  - Align design and construction goals early.
- Stakeholders' roles:
  - Governments: Set restrictions, offer incentives.
  - Investors & project owners: Lead decision-making, guide designers.
- Guidelines: Practical methods for planners, designers, and others.

Barriers

- Communication gaps
- Time and cost pressures
- Economic structure prioritise short-term growth over sustainability
- Rethink priorities for sustainability

Thank you!

adalsteinn@graennibyggd.is
astros@graennibyggd.is

Programme partners

Nordic Innovation

Ministry of the Environment Finland

Government of Iceland
Ministry of Infrastructure

Danish Authority of Social Services and Housing

Form Design Center

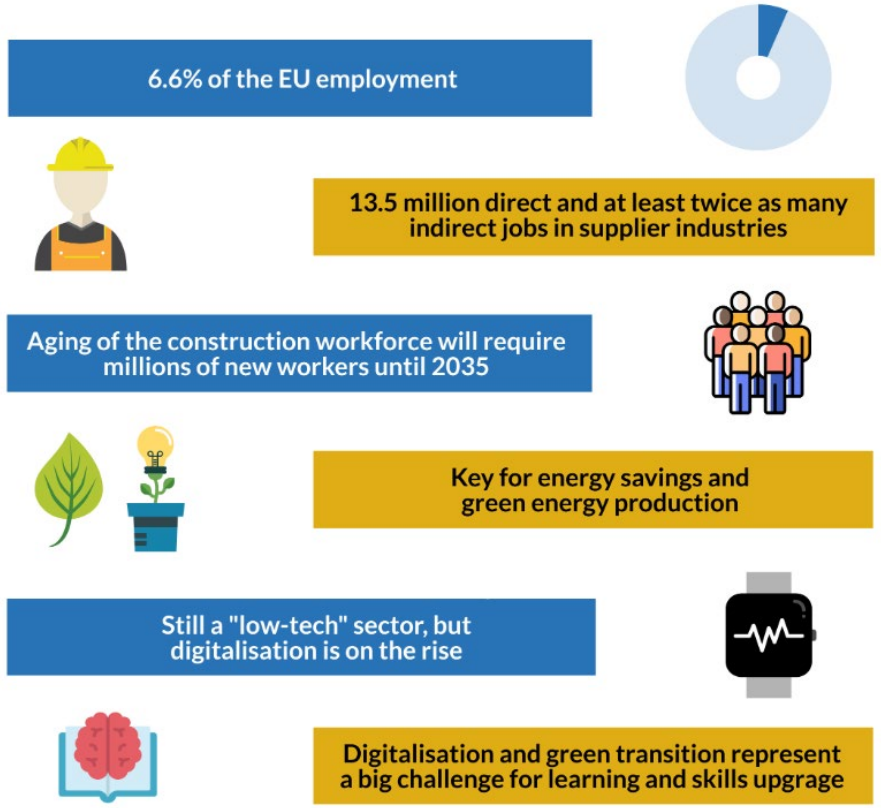
Programme financed by Nordic Innovation, an organisation under the Nordic Council of Ministers

Work Package 5

Programme Secretariat & Competences for Reuse in Construction

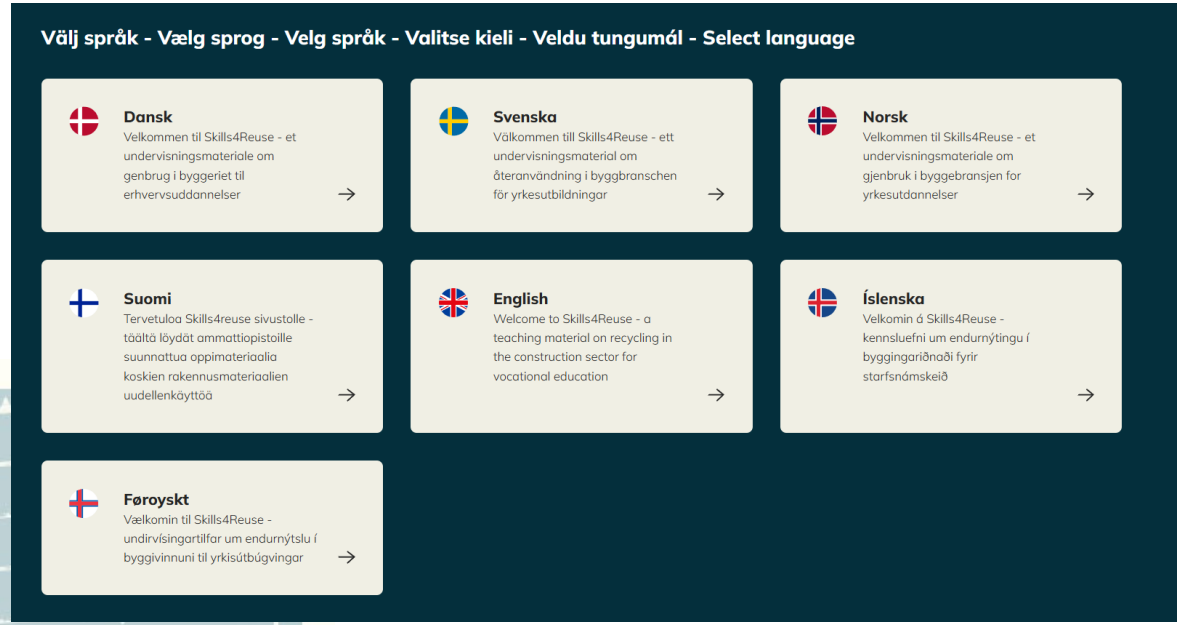
The need for competences for reuse

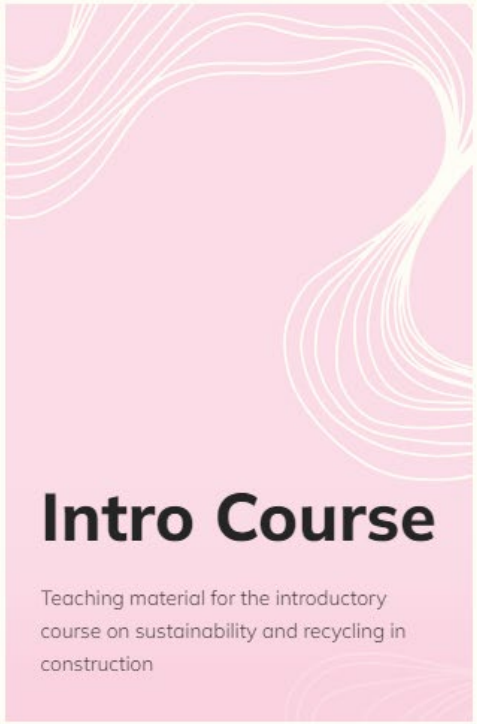
RICS (Royal Institution of Chartered Surveyors)

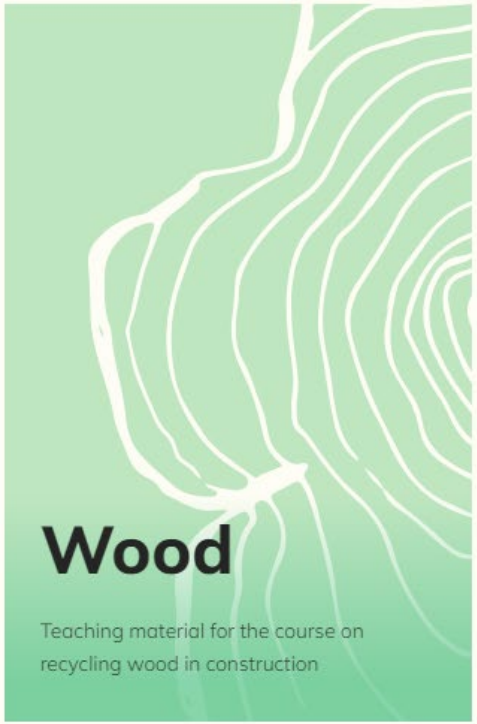


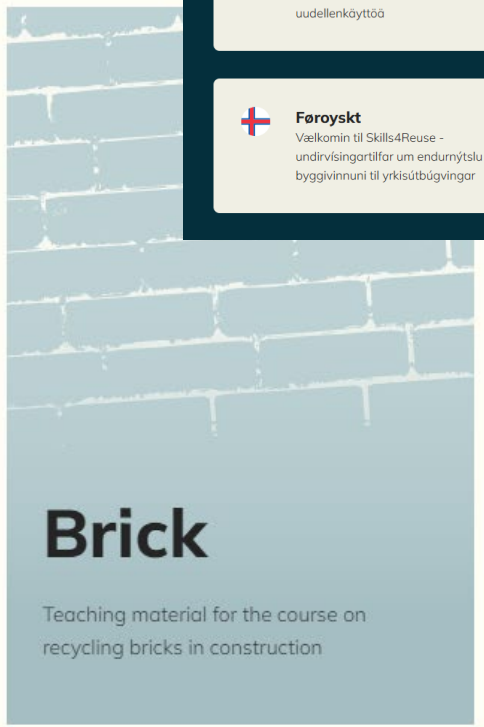
CEDEFOP (The European Centre for the Development of Vocational Training)

Skills4Reuse









Skills4Reuse is developed by:

Find it here: www.skills4reuse.com

Nordic Sustainable Construction

VIDENSCENTER FOR HÅNDVÆRK BÆREDYGTIGHED

NORION CONSULT

Feedback: Relevant, useful and of high quality

- A lot of positive response from teachers and vocational education leaders and heads of department

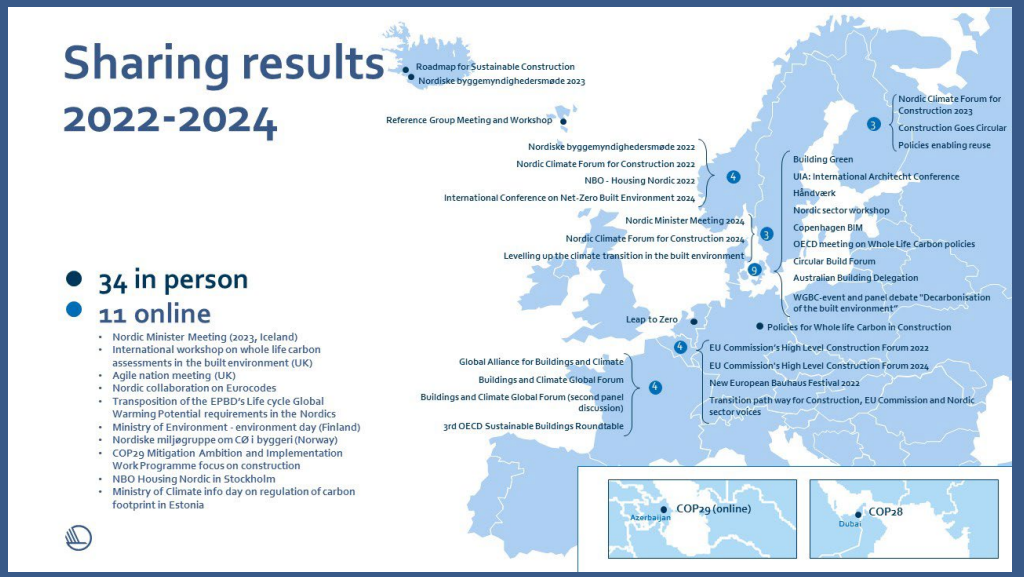
- Particularly emphasised areas are:
  - Overall high quality
  - Good videos
  - Good level of difficulty
  - Easy to apply to teachings
  - More than just '*how to*' reuse

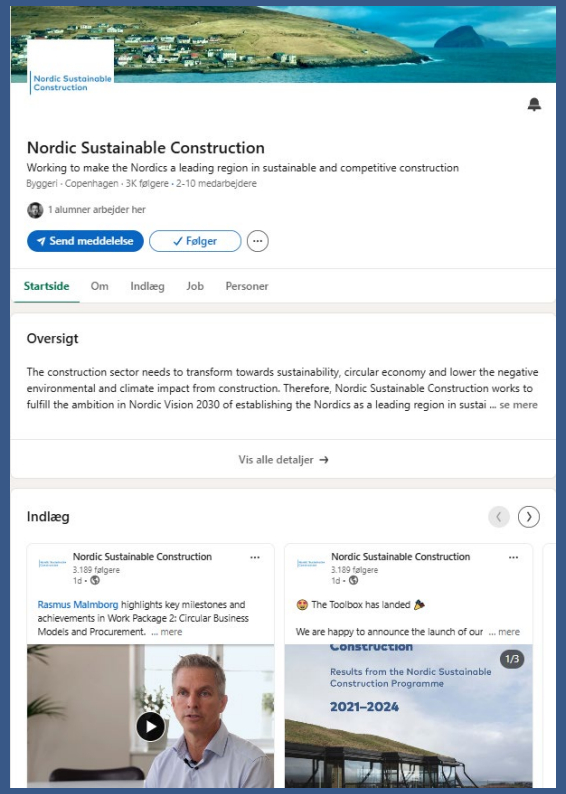
"There is a teacher's guide with learning objectives and all, a pure gift for the teacher. There will be a new transition requirement from the basic course to the main course. Your material will be able to cover pretty much everything here."
- Vocational school teacher

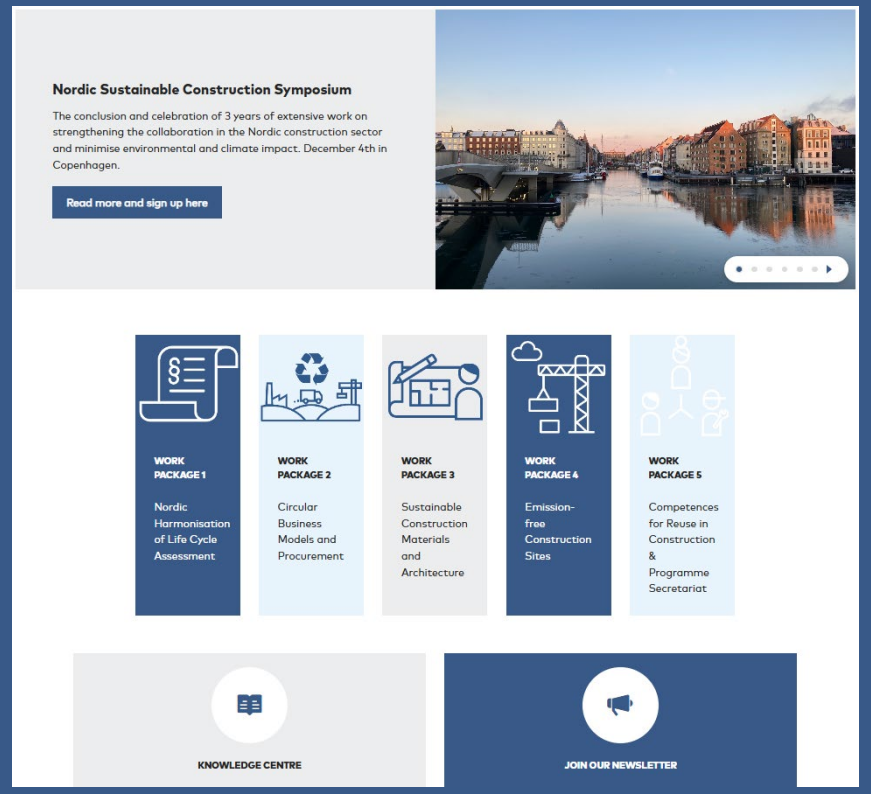
Knowledge accelerator

- 30 Published reports
- 82 News & 7 newsletters
- 40 Webinars
- A lot of Linkedin post
- 45 Speaking engagements
- 13 Nordic programme meetings
- 10 Site visits
- 3 Ministers meetings
- 14 Construction industry dialogues

= Accelerating the knowledge foundation to implement a green transition of the construction sector







Harmonisation and green benefits

February 2024: Nordic priority paper to harmonise and find green benefits in the adaption of the national annexes for eurocodes

November 2024: 8 groups have presented indicative potentials in the national adaptation of eurocodes annexes for harmonization and/or climate and/or resource:

1. Nordic mirror group to TC250 acts as steering group and reports to representatives from authorities: Collection of reports on harmonization and/or green potentials of Eurocodes (all parts), Dag Burgos
2. Basis of structural and geotechnical design, Part 1 (EN 1990-1), Jochen Köhler
3. Climatic actions (wind, snow, temperature) (EN 1991), Svend Ole Hansen
4. Traffic loads (EN 1991), Heikki Lilja
5. Design of Concrete structures (EN 1992), Linh Cao Hoang
6. Design of Steel structures (EN 1993, main parts), Wylliam Husson
7. Design of Masonry structures (EN 1996) , Adrian Bergsagel Malvåg
8. Geotechnical design (EN 1997), Gunilla Franzen

2025- ?: Potential to harvest in a new programme.

Key results & conclusions

- Effective and useful Nordic collaboration between authorities, researchers and construction industry
- Improved and more aligned regulation
- Nordic voice heard and used in the EU and beyond
- Nordics are seen as frontrunner within transition in construction
- Website with easy accessible knowledge, tools and education materials freely available
- Strong fundation to a new programme

→ Accelerated the green transition of the construction sector

Panel discussion with work packages

				
WP1 Harri Hakaste Ministry of the Environment	WP2 Rasmus Malmborg Nordic Innovation	WP3 Pernille Martiny Modvig SUSTAINORDIC	WP4 Björn Karlsson Ministry of Infrastructure, Iceland	WP5 Coco Krusbæk Danish Authority of Social Services and Housing

Moderating:
Helle Redder Momsen

Coffee/tea break